TRIVANDRUM

(Pages : 4)

**R – 2362**

**Reg. No. : .....**

**Name : .....**

**Fourth Semester B.Sc. Degree Examination, July 2023**

**First Degree Programme under CBCSS**

**Chemistry**

**Complementary Course for Botany**

**CH 1431.3 : ORGANIC CHEMISTRY**

**(2020 Admission onwards)**

Time : 3 Hours

Max. Marks : 80

PART – A

Answer **all** questions. Answer in one word to maximum of two sentences. Each question carries **1** mark.

1. Give any two examples for partition chromatography.
2. What is the stationary and mobile phase of paper chromatography?
3. Explain racemic mixture.
4. Give any two examples for non-essential amino acids.
5. What is meant by isoelectric point?
6. Write any two methods that can be used for denaturation of proteins.
7. What is meant by saponification value?
8. Draw the chemical structure of geraniol.

P.T.O.

9. Explain any one preparation reaction of glucose.

10. Define the term pharmacognacy.

**(10 × 1 = 10 Marks)**

## PART – B

Answer **any eight** questions. Each question carries **2** marks. (short answer type)

11. Distinguish $R_f$ and $R_t$ values. What are its importance?

12. Briefly explain zone electrophoresis technique.

13. Explain the terms :

    (a) Diastereoisomers and

    (b) Enantiomers.

14. Draw the enantiomers of glyceraldehyde.

15. Explain zwitterion using an example.

16. Write any one chemical reaction for the preparation of amino acids.

17. Explain isoprene rule. Write any one terpene which is an exemption to this rule.

18. Write notes on the general classification of vitamins.

19. Write the chemical reaction when D-glucose and D-fructose is reacted with phenyl hydrazine reagent.

20. Illustrate mutarotation using glucose as an example.

21. Write any two classification of drugs based on their pharmacological activity using examples.

22. Explain the therapeutic use of volatile oils and phenols.

**(8 × 2 = 16 Marks)**

## PART – C

Answer **any six** questions. Each question carries **4** marks. (Short essay type)

23. Write notes on gas chromatography.

24. Comment on the optical activity of tartaric acid.

25. Explain ninhydrin reaction of proteins.

26. Write notes on structural differences of DNA and RNA.

27. What is meant by transcription of DNA? Explain in detail.

28. How are terpenes classified? Give suitable examples.

29. Write any two importance of quinine and codeine.

30. Illustrate the way by which essential oils are extracted from plant samples.

31. Draw the structures of starch and cellulose.

**(6 × 4 = 24 Marks)**

## PART – D

Answer **any two** questions. Each question carries **15** marks.

32. Write notes on the principle, instrumentation and applications of HPLC.

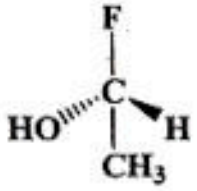
33. (a) Write notes on carbobenzoxy method for the synthesis of peptides.

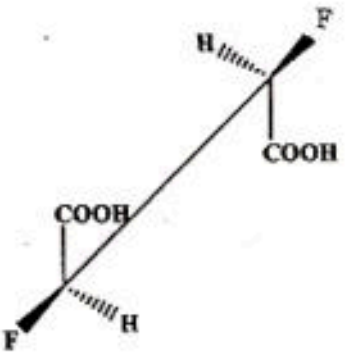
    (b) Write notes on the structure of proteins.

34. (a) What is meant by optical resolution of enantiomers?

(b) Explain any one method of resolution of enantiomers.

(c) Assign R/S notation to the following compounds :

(i) 


(ii) 


35. (a) Explain the furanoside structure of fructose.

(b) Write chemical reactions for the conversion of fructose to glucose

(c) Illustrate oxidation and reduction reactions of glucose.

**(2 × 15 = 30 Marks)**